

IN THE CLAIMS:

Amend claim 1 as follows:

--1. (amended) A method to obtain contamination free surfaces of a material chosen from the group consisting of GaAs, GaAlAs, InGaAs, InGaAsP and InGaAs at crystal mirror facets for GaAs based laser cavities, comprising:

B2 cleaving out said crystal mirrors facets exposed to an ambient atmosphere containing a material from the group consisting of air, dry air, or dry nitrogen ambients;

removing any oxides and other foreign contaminants obtained during the ambient atmosphere exposure of the mirror facets by dry etching in vacuum;

growing, after having the oxides removed, a native nitride layer on the mirror facets by treating them with nitrogen.--

[Amend claim 2 as follows:]

--2. (amended) A method according to claim 1, further comprising:

starting said dry etching using a substance assisted plasma comprising at least one substance from the group consisting of chemically inert and reactive gases, hydrocarbon gases, and mixtures of chemically inert and reactive gases and hydrocarbon gases;

passivating the facets after obtaining a contamination free surface by using a nitrogen assisted plasma.--

Amend claim 11 as follows:

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--11. (amended) The method according to claim 1, wherein said GaAlAs-InGaAs surfaces at crystal mirror facets also comprise an element from the group consisting of Sb and Se.--

Amend claim 12 as follows:

--12. (amended) The method according to claim 2, further comprising:

starting to grow a nitride layer onto said contamination free surface during introduction of an element from the group consisting of ionic nitrogen, atomic nitrogen and molecular nitrogen to said substance assisted plasma and in reaction with GaAlAs-InGaAs layers provided during said cleaving of said laser facets;

making an interface between each cleaned facet and said grown nitride layer gradual making use of a native nitridisation in order to minimize interface recombination between different layers.--

Amend claim 13 as follows:

--13. (amended) A method according to claim 12, further comprising:

creating said nitride layer using plasma comprising nitrogen with an extracted beam, said nitride layer consisting of at least one material from the group consisting of AlN, GaN, InN, InAsN.--

Amend claim 23 as follows:

--23. (amended) A method according to claim 20, further comprising:

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creating said nitride layer using plasma comprising nitrogen with an extracted beam, said nitride layer consisting of at least one material from the group consisting of AlN, GaN, InN, InAsN.--

[Amend claim 32 as follows:]

--32. (amended) The method according to claim 26, wherein:

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said mixture between said reactive gases and inert gases comprises at least one element from the group consisting of argon, nitrogen, hydrogen and chlorine.--

[Amend claim 33 as follows:]

--33. (amended) The method according to claim 26, wherein said creation of a first nitrated surface layer uses a nitrogen ion beam extracted from a plasma containing nitrogen gas, said plasma comprising at least one element from the group consisting of hydrogen and argon.--

[Amend claim 35 as follows:]

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--35. (amended) A method to passivate a laser mirror comprising layers of GaAlAs-InGaAs after obtaining a first and a second contamination free laser mirror facet surface, comprising:

adding nitrogen gas to an argon plasma and gradually removing argon until only nitrogen plasma is provided,